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AUTHOR Asher, Steven R.; Gabriel, Sonda W.
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ABSTRACT

This paper describes an observational methodology designed to permit increased understanding of the day-to-day social world of school children. The methodology was developed in the course of investigations of the extent to which children classified as rejected on sociometric measures actually experience overt rejection at school. Discussions of the consequences of rejection and of observational research on rejected children precede a description of an intensive observation that combined audiotaping and videotaping. The wireless transmission system used for audiotaping recorded rejected and average status children's conversations in all student settings is described. During lunch, recess, and physical education, children's behavior was videotaped by a camcorder. In children's classrooms, and in their art, music, and library classes, audiotapes were supplemented with coding of behavior. Students wore a microphone attached by cable to a belt pack transmitter. The observer carried the receiving equipment in a backpack. In the classroom settings, the observer also carried a tape recorder. Illustrative conversations bearing on rejection experiences conclude the discussion. A list of equipment costs is appended. (RH)

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The Social World of Peer Rejected Children as Revealed by a Wireless Audio-Visual Transmission System

Steven R. Asher and Sonda W. Gabriel

University of Illinois

Urbana-Champaign

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Although research on peer rejection has grown considerably in the past decade, we actually know relatively little about what it is like for a child to be in school all day and to have few friends or playmates to turn to. To what extent do children who are classified as rejected according to sociometric measures actually experience overt rejection in their day-to-day lives at school? This question has not been explicitly addressed through direct observational research. The purpose of our paper is to describe an observational methodology for addressing this question, a methodology designed to better understand the day-to-day social world of children in school.

The Consequences of Rejection

Although direct observational data are limited, there are several lines of research which suggest that rejection by the peer group has painful consequences for children, and that the phenomenon of peer rejection should be a cause for educators' focused concerns. One indicator that peer rejected children are experiencing emotional difficulties comes from long-term follow-up studies of unpopular children. This literature has recently been reviewed by Parker and Asher (1987) and by Kupersmidt, Coie, and Dodge (in press). Both reviews conclude that there are links between low sociometric status in the peer group in childhood and later life adjustment difficulties. The linkage is particularly strong when the adjustment outcome studied is early withdrawal from school. In study after study,

children identified as being low in peer acceptance dropped out at rates two, three, and even eight times higher than other children. In percentage terms, on average, about 25% of low accepted elementary school children dropped out compared to about 8% of other children. As Parker and Asher (1987) commented: "To go to school each day without looking forward to seeing anyone or participating in group activities might give sufficient cause for dropping out, regardless of academic achievement."

Other, more direct evidence concerning the affective experiences of rejected children comes from studies using self-report measures. Several recent studies indicate that rejected children report greater loneliness in school (Asher & Wheeler, 1985; Crick & Ladd, 1988; Parkhurst & Asher, 1989). Indeed, the link between low status in the peer group and loneliness has been found even among kindergarten and first-grade children (Cassidy & Asher, 1989). Rejected children also report more worry or anxiety about their relationships with others (Hymel & Franke, 1985; Taylor & Asher, 1989). For example, when asked about game playing situations, unpopular children are more likely than their better accepted peers to express concerns about being teased, getting into arguments, and being disliked (Taylor & Asher, 1989).

These types of self-report data, like the long-term follow-up data, suggest that rejected children are having a difficult time at school and are experiencing frequent rebuffs in their daily school lives. Still, it is of interest that far less than a majority of low-accepted children drop out (Parker & Asher, 1987)

and that most rejected children do not report elevated levels of loneliness (Asher & Wheeler, 1985). More direct observational evidence is needed concerning the day-to-day lives of poorly accepted and well-accepted children in school. It may be that some sociometrically rejected children do experience frequent negative treatment from their peers, while others do not.

Observational Research with Rejected Children

Although there is a long tradition of school-based observational research on unpopular children (see Coie, Dodge, & Kupersmidt, in press), virtually all of the research has been conducted in the classroom. This setting works well in preschool studies, since much of preschool class time is devoted to free play or relatively unstructured activities. However, in elementary schools the classroom is much more structured and certain forms of behavior are much less likely to occur. For example, overt aggression rarely occurs in the classroom (e.g., Singleton & Asher, 1977), although it is far more likely to be observed on the playground (Ladd, 1983). As a result, observational research done only in classroom settings is less likely to provide a complete picture of children's social interactions.

A recent study by Ladd (1983) illustrates the advantages that may be gained by observing children's social interactions in non-classroom contexts. Ladd's study is one of the few school-based observational studies of elementary school rejected children to focus on non-classroom contexts. Ladd observed third- and fourth-grade popular, average, and rejected elementary school children during recess periods on their school playgrounds.

Ladd found that rejected children, compared to popular and average children, were less prosocial and more aversive in their social interactions with peers. Rejected children spent more time alone and unoccupied than their better accepted peers, and tended to play in smaller groups, often with children younger than themselves and with other rejected children. Rejected children were also found to move about more from one potential playmate to another, rarely remaining engaged with others for long. Ladd's interesting findings illustrate the potential value of observing children in non-classroom contexts. Certainly the pattern he identified of rejected children moving from playmate to playmate suggests a less than satisfactory school experience.

Other features of existing observational research in elementary schools also limit the information gained about the nature of children's rejection experiences. Most previous observational research on children's peer relations in school has been characterized by brief samples of behavior, with typically as little as 10 to 30 minutes of observational data collected per child. Furthermore, previous observational research in the field of peer relations primarily has used observational methods such as time-sampling, which focus on a specific child for a very brief period of time (e.g., 10 seconds). This observational method has certain disadvantages. Perhaps the most significant of these is that the flow of events characterizing real-life behavior is lost, as are both the frequency and the duration of behavior (see Altmann, 1974). Finally, most previous observational research in school settings has used live observations to

record children's behavior, rather than using videotaping. This constrains the level of detail possible in analyzing children's behavior, especially their conversations.

By contrast, several recent observational studies, conducted in experimentally constructed analogue settings, have used videotaping and employed more detailed behavior coding systems. Children have been put into newly formed groups (e.g., Coie & Kupersmidt, 1983; Dodge, 1983; Guralnick & Groom, 1987), observed while they try to enter dyads (e.g., Putallaz, 1983; Putallaz & Gottman, 1981), or observed while they engage in a dyadic decision making or problem solving task (e.g., Markell & Asher, 1984). These lines of inquiry have yielded many interesting results and indicate how videotaping facilitates more detailed coding of children's social interactions.

To summarize, then, there is a need for observational research into the day-to-day lives of rejected children that has the following features: a) the use of videotaping to facilitate detailed coding systems; b) extensive samples of children's behavior, made over a period of several weeks or months; and c) observations of children in the multiple school settings in which they participate, particularly more unstructured settings such as the playground. This kind of research would be particularly instructive regarding the daily life experiences of rejected children in school.

Observing Behavior with a Wireless Transmission System

Fortunately, recent advances in audio-visual technology make it feasible to conduct research in school settings which could yield rich videotape and audiotape data while minimizing problems of researcher intrusiveness. We have recently completed two studies of children's day-to-day school lives, one with a sample of 11 peer rejected and 11 average status children, and the other with a sample of 13 mainstreamed mildly mentally retarded children. In this paper we will describe our methodology, since it may have utility for other researchers. Given the size of the transcribing and coding tasks, we expect to present our results in about two years.

Both studies were conducted in several school settings. We observed the rejected and average status regular education children in their classrooms, at lunch, at recess on the playground, in physical education, and in art and library classes. We observed the mildly retarded children in their special education classrooms, and in the activities for which they were mainstreamed, which included lunch, recess, physical education, art, music, and library classes. Each child was observed two or three times in each of these settings.

In both studies, formal behavioral observations began in November and continued until the end of the school year. Each session of observing a child lasted for 40 minutes in the classroom, and continued for the duration of the activity in other settings (i.e., 45 minutes at lunch and recess, 40 minutes in physical education, 40 minutes in art, and 30 minutes in music

and library classes). Altogether, approximately six hours of observational data were collected on each child.

This intensive observation was accomplished by using a combination of audiotaping via a wireless transmission system, and videotaping with a small eight millimeter camcorder that had zoom capability (see Appendix A for a list of all equipment and approximate costs). The wireless transmission system was used to record children's conversations in all settings. In addition, at lunch, recess, and physical education we simultaneously videotaped children's behavior. In children's classrooms, art, music, and library classes, where videotaping would have been more intrusive, we audiotaped their speech and simultaneously did live coding of behavior.

To accomplish our recordings, the child wore a Sony lavalier three-quarter inch long microphone. A thin, 42 inch long cable connected the microphone to a Samson belt pack transmitter. The transmitter was contained in and protected by a padded pouch that was fastened around the child's waist with a belt. These two devices together weighed approximately seven ounces. Children wearing these devices were able to move about freely, since no wires connected the child to the observer who was carrying the receiving equipment.

The observer carried the receiving equipment in a backpack. This equipment included a Samson audio receiver and a Nicad battery pack used to power the receiver. In the classroom settings, the observer also carried a Toshiba tape recorder used to record children's speech. At lunch, recess, and physical

education, the observer carried a Minolta eight millimeter camcorder. The backpack weighed approximately eight pounds, and the videocamera weighed five pounds. With this system, children's speech was transmitted from the devices the child wore, to the receiver, and then to either the tape recorder or the videocamera, depending on the setting. Using this system, virtually perfect synchrony was achieved between the child's voice and the visual picture. The observer was able to listen to the conversations being recorded by wearing an earplug-type speaker that was connected by a wire to the tape recorder or videocamera. This made it possible for the observer to monitor whether children's conversations were being clearly transmitted.

With this system, the observer could be as much as 300 feet away from the child, and still hear children's conversations clearly. We tried to stand at least 100 feet or more away from the child wearing the microphone whenever possible. The system recorded both the speech of the child wearing the microphone, and the speech of any children or adults who talked to the child within about 10-15 feet of the focal child. We could hear children whisper to each other, and we could hear children's private speech. The wireless transmission system and the video-camera with zoom capability that we used made it possible to record children's conversations and film their behavior quite unobtrusively. We rarely saw signs of reactivity on the part of the children being observed, the other children, or the adults at the school.

With the wireless transmission system, sound did not pass through walls and other solid structures. Thus, if the child wearing the microphone went around a corner of the school building, sound was momentarily lost while the observer followed the child. The presence of power lines, interfering radio frequencies, and large metal objects could also cause a momentary loss of audio input. These occasional losses happened only on the playground, and they rarely lasted for more than a few seconds. Since the observer used the earplug to monitor audio input at all times, if an audio loss did occur the observer moved a few feet away from the object causing the problem, or a few feet closer to the child. After a short period of time, certain "trouble spots" were identified and these areas were avoided whenever possible.

As mentioned previously, observations were conducted for virtually an entire school year, from November until June. During that time, the primary observer was at the school collecting data all day, everyday that school was in session. Both the primary and the reliability observer spent three weeks at the school prior to the beginning of the observations. This time was used by the observers to learn the names of all the children in third- through sixth-grade at the school, the names of all adult staff, and to practice using a coding system that we developed for the direct observations.

This time spent in the school was also very important in allowing the children, their teachers, and other members of the school staff to become accustomed to our presence. The children learned who the observers were and what their role was in the

school. Although the observers were friendly with the children, they did not engage in extended conversations. The observers also did not direct the children's activities in any way. Most importantly, the children learned that the observers would not tell their teachers, parents, or anyone else what the children did or said. Thus, the children came to trust the observers, and to behave very naturally in their presence. The children enjoyed wearing the microphone and transmitter. Throughout the school year, children who had not been selected for the observations would approach the primary observer and ask to wear the microphone.

Although complete transcriptions and formal coding of our observational data remain, one thing is clear. Overt rejection is a regular fact of life for many children at school. Our plan for completion of our project is to identify all rejection episodes, calculate the frequency of rejection for our different samples, content analyze these rejection episodes according to their form and intensity, identify the co-participants in rejection episodes according to their grade, gender, and sociometric status, and examine the antecedent events to rejection, as well as the affective and behavioral consequences of rejection.

Some Illustrative Conversations

We would like to conclude this paper by illustrating something of the range of rejection experiences we were able to record using the wireless system.

Sometimes rejection episodes involve displays of anger or physical intimidation. The following episode takes place in the

lunchroom, shortly after Tim, a rejected boy, has joined the other boys from his classroom at their usual lunch table. Although Tim is rejected, he is allowed to sit at this table, which the boys have named the Smith table after the last name of their teacher, with the other boys from his class. Most of the children in his class openly dislike Tim. However, he has one friend, Mark. Even though Mark says that Tim is his friend, he gets very irritated at him sometimes. In this case, Mark has apparently gotten in trouble for fighting, and Tim throws this up to him. This angers Mark, and he responds by physically threatening Tim.

Tim to Mark: And Mark's a big fighting man, huh Marky? You hafta go to Miss Rice's (Miss Rice is the detention secretary). (pause). I saw her at Jolly Roger's. Once.
Mark to Tim: If you say that one more time you aren't gonna have a face to see her with. Okay? (Mark leans across the table as he says this, so that his face is just a few inches from Tim's. Tim takes a bite of his sandwich, puts his hands on his hips, and bobs up and down in his seat).
Mark to Tim: Listen up boy, I'll kick your ass. Fuck you, you asshole (Jeff, an average status boy sitting next to Mark, urges him to "Go over there and beat him up").
Mark to Jeff and Tim: Thank you Jeff I will (Mark now gets up from his seat and walks around to Tim's side of the table. As he does so, Tim looks around the lunchroom, appearing somewhat nervous).
Mark to Tim: I'm gonna butcher you up boy.
Tim to Mark: Uh-oh ha-ha-ha (Tim points behind Mark to a lunchroom monitor who is walking nearby and laughs, realizing that Mark cannot do anything to him with the monitor there).
Mark to Tim: You're gonna spin (Mark now returns to his own side of the table. Tim bangs his fist on the table several times).

Following this episode, Mark and Tim said very little to each other during the rest of lunch, and did not interact at all at recess. Tim received verbal abuse and a number of threats of physical harm from other boys and girls at recess.

Sometimes rejection takes the form of being excluded from a peer group activity. In the following episode, Joan, a retarded girl, had been playing during recess on a piece of highly desirable playground equipment (the tire swing) with other retarded children. Cathy and Anne (who are also retarded) approach. They tell Joan to get off the swing. She complies but immediately gets back on. The children then objectify her by talking about her in the third person. They then go on to make fun of a negative personal characteristic, and proceed to disparage her family.

Cathy to Joan: Joan. Go on, get off (Cathy slows down the swing so Joan can get off).
Cathy to Joan and Bill: Good, thanks sport (Joan and a retarded boy, Bill, get off and help push. Mary, a nonretarded girl, comes up and helps push).
Cathy to Joan and Anne: I want that gross girl off here (Cathy is referring to Joan).
Beth to Cathy: Cathy, I wanta get on it (Beth is also a nonretarded girl).
Cathy to Beth: Well you can't, now shut up Beth (Beth leaves).
Anne to Cathy: Okay, they gone!
Cathy to Joan: And stay off, Joan (Anne, Cathy, Mary, and Natalie, another retarded girl, are now on the swing, Joan is standing nearby).
Joan to Cathy: I can play (Joan climbs back on).
Cathy to Mary and Joan: Oh god! Stinky's on here again (Cathy is referring to Joan).
Anne to Cathy: Oh god, look!
Cathy to Joan: Booger-nose.
Mary to Cathy: Which one?
Cathy to Mary: The one with the blue coat. The one that's beside you.
Cathy to Mary: Yeah (said in response to Mary pointing at Joan).
Mary to Cathy: Joan?
Cathy to Mary: Yeah, she she picks her nose and eats 'em, all the time.
Anne to Mary and Cathy: And when it's cold out, when it's real cold outside the uh the green snot come out her nose and she usually licks it. And I wouldn't be sitting by her if I was you (Mary moves away from Joan and Cathy and Anne laugh).

Joan to Cathy and Anne: I'm tellin' I'm tellin' my teacher on you.
Cathy to Joan: Hey we weren't talkin' about you. We were just sayin' booger-nose, booger-booger-nose, booger-booger nose! (Cathy and Anne are jumping up and down on tire, chanting).
Joan to Cathy: Noooo!
Cathy to Anne and Mary: Say it, say it ourselves (Cathy continues chanting).
Joan to Cathy and Anne: I'm tellin' my-
Cathy to Joan: Booger-nose, runnin' boogers out the booger-nose (Cathy sings this).
Cathy to Mary: Her cousin's eats boogers and all that. Her mother even's do it, her her mother, her mother-

Sometimes rejection takes the form of hostile teasing. In this case, Sara, a retarded girl, is standing in the lunch line waiting to get her lunch when she is teased by some younger, nonretarded girls (Julie, Tracy, Cindy, and Sandy) who begin asking her math problems. Sara responds by answering their questions, getting some of the answers correct. She finally gets upset and tells them not to ask her any more, saying that she will know the answers when she is older. However, even this does not help. The girls finally tire of teasing Sara and leave her alone. The episode also illustrates the kind of reactivity we sometimes observed. Here Julie comments about the microphone that Sara was wearing and then ignores it.

Julie to Sara: Hi Hope (Julie is teasing Sara, says this with a goofy smile and tone of voice, and refers to her as Hope (Sara's best friend) even though she knows her name is Sara).
Julie to Sara: Are you gonna do a rock n' roll song in there? (Julie is referring to the microphone, Sara doesn't respond).
Tracy to Sara: Sara, what's three plus three? (Tracy, who is in front of Julie in the line, now teases Sara).
Sara to Tracy: Six.
Tracy to Sara: Ten plus ten equals?
Sara to Tracy: Twenty.
Tracy to Sara: Twenty? Eight times eight?

Sandy to Sara: What's one plus one? What's one plus one? (Sandy is behind Sara in the line).
Sara to Sandy: Two.
Tracy to Sara: It's sixty-four.
Sara to Sandy: Two.
Tracy to Sara: Eight times eight?
Sara to Tracy: Sixty-four?
Tracy to Sara: Nope. No, eight times eighty. What's six times six?
Sandy to Sara: What's six plus six?
Julie to Sara: What's what's three times five?
Tracy to Sara: What's two times two?
Sara to Tracy: Four.
Julie to Sara: What's three times uh three times five?
Tracy to Julie and Sara: Six (Julie nods).
Julie to Sara: No it's not Sara.
Tracy to Julie and Sara: She don't know nothin' (Tracy turns Julie around to face forward in the line).
Julie to Sara: Sara. What's five um five- (Julie is interrupted by Cindy playing with her face, pushing her cheeks together, etc.).
Tracy to Sara: Three plus fi, I mean three times five?
Sara to Julie: Stop uuh stop tellin' me. I'll know that when I'm older (Julie steps back a little, so she is partly behind Cindy).
Julie to Sara: You don't know it?
Sara to Julie: Not yet, but I knoooww what ten ti-
Julie to Sara: How old are you?
Sara to Julie: I'm nine years old.
Julie to Sara: I'm nine years.
Cindy to Sara: You should know that. I'm eight years old and I know that.
Julie to Sara: It's fifteen.
Cindy to Sara and Julie: That's right.

Our tapes will also allow us to examine the affective and behavioral responses children make to rejection. The following transcript segment illustrates that even a seemingly mild rejection experience can be quite a powerful event for some children. In this episode we see the dramatic reaction of Ben, a rejected child, after his best friend, Jason, an average status child, tells him he is playing with someone else instead of him, apparently breaking a promise he had made. Ben hangs his head and starts to cry. In a couple of minutes Jason and Chad leave

and go eat at a table on the opposite side of the lunchroom. After a few minutes of crying and moaning quietly, Ben dries his tears and goes over to where Jason and Chad are sitting.

Ben to Jason: I hate your guts.
Jason to Ben: Why?
Ben to Jason: Because you lied.
Jason to Ben: What?
Ben to Jason and Chad: He said he was gonna play with me and he lied (Ben explains to Chad).
Chad to Ben: Uh-oh.
Ben to Jason: You said this whole week that you were gonna play with me and you lied.

Ben then leaves and returns to his own table, quietly continuing to cry. When Jason and Chad come back to Ben's table and try to talk to him, Ben puts his fingers in his ears and ignores them. After a few minutes, Jason and Chad give up trying to talk to Ben. After leaving the lunchroom at recess, Ben continues to cry and isolates himself from other children, hiding behind the school dumpster. Girls from his class and other classes find him and attempt to make peace between Ben and Jason, which Jason is willing to do. However, Ben is stubborn and the situation is not resolved for the rest of lunch and recess, and according to the teacher was not resolved for the rest of the school day. This incident illustrates not only a child's sadness about being rejected but the way in which a child's failure to respond to efforts to repair a relationship leads to continued problems.

These, then, are the sorts of actions and conversations that can be observed in various school settings using a wireless transmission methodology. We look forward to learning in detail

about the social world of peer rejected children in school. We also hope to gain insights that will help further the development of effective interventions for children who clearly are an "at risk" group.

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Appendix A

Audio Transmission Equipment	Approximate Cost
Sony ECM-44 lavalier microphone	$ 200
Samson TH-1 belt pack transmitter	200
Samson RH-1 VHF FM receiver	150
SAFT Nicad NPP-1245C battery pack	150
Toshiba KT-P22 tape recorder	100
Video Transmission Equipment	
Minolta CR-8000S AF 8mm camcorder	1,500
Approximate Total Cost	$2,300

The audio transmission equipment was purchased from August Systems, Champaign, Illinois, 217-356-0500. The video transmission equipment was purchased from Good Vibes Sound, Champaign, Illinois, 217-351-0909.